

To: Rob Runkel[runkel@usgs.gov]; Wall, Dan[wall.dan@epa.gov]; Blackburn, Robyn[Blackburn.Robyn@epa.gov]
Cc: Way, Steven[way.steven@epa.gov]; Lewis, Brent R[b1lewis@blm.gov]; Katie Walton-Day[kwaltond@usgs.gov]; Daniel Cain[djcain@usgs.gov]; Christopher C Fuller[ccfuller@usgs.gov]
From: Schmittiel, Paula
Sent: Wed 7/29/2015 5:11:09 PM
Subject: RE: Animas Sediment Sampling

Thanks Rob - this should be an interesting comparison. I'm sure that Dan will send you EPA's sampling results and the comparison.

Paula Schmittiel
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-----Original Message-----

From: Rob Runkel [mailto:runkel@usgs.gov]
Sent: Wednesday, July 29, 2015 11:06 AM
To: Wall, Dan; Blackburn, Robyn
Cc: Schmittiel, Paula; Way, Steven; Lewis, Brent R; Katie Walton-Day; Daniel Cain; Christopher C Fuller
Subject: Animas Sediment Sampling

Dan/Robyn,

Attached are some results from sediment sampling conducted Sept. 24, 2014 on the Animas River in Silverton. I sampled two sites, A68 and A72, that were sampled the previous day by EPA.

This work stems from some conversations between Robyn and Katie Walton-Day in regard to techniques for sediment sampling and differences between USGS and EPA protocols. The samples I collected followed the protocols used by our USGS colleagues at the Clark Fork Superfund Site (MT); sediments were wet sieved through a 64 micron mesh to reduce sediment size bias (Hornberger et al. 2009, attached). I collected two samples at each site, and each sample was sub-sampled in the lab. So there are 4 results/site -- see attached spreadsheet.

A couple things of interest:

First, these results should be compared to the samples collected on the previous day. Do the EPA and USGS protocols produce substantially different results?

Second, the results show a decrease in sediment concentrations for most metals as you go from A68 to A72 (Ag, Al, Ca, Cd, Cr, Cu, K, Mg, Mn, Ni, Pb, Ti, V, Zn all decrease; As, Fe, and Na increase; Co is steady). See attached plot for an example.

These results are somewhat surprising at first glance, in that one would expect concentrations to increase from A68 to A72 w/ the additions from Cement Creek and Mineral Creek. Most concentrations decrease, however, and this is attributable to the higher pH at A68 (7-8) versus A72 (6-7); the higher pH likely results in more partitioning to the solid phase and deposition to the sediments.

Regards,

Rob

p.s. we'll be collecting sediment samples on the Snake River near Keystone on Sept 9, as a follow up to sampling we completed in 2013; let us know if anyone would like to join us.

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